Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

fibro-vascular zones arise from the pericycle), the diœcious flowers, pentamerous calyx, absence of corolla, indefinite stamens, solitary ovules, apical position and caducous character of the stigmas, exalbuminous seeds and accumbent cotyledons. Several of these features, however, do not appear to have in the present case much diagnostic value. For instance, nothing can be argued from the absence of petals, since these members are either lacking or extremely rudimentary in the other Buxaceæ. As to the indefinite stamens, these occur also in Styloceras, which is furthermore subdiœcious. Nevertheless, enough good distinctions remain to show a rather wide gap between Simmondsia and the other genera of the group to which it has long been referred.

The tendency to make new families of divergent or anomalous genera is of late very pronounced. Thus, in the interval between the issue of Engler & Prantl's *Natürlichen Planzenfamilien* and the supplement of the same work, a rather large number of these small and often monotypic "families" have been suggested. The creation of such families, if followed by no rearrangement, is of doubtful practicality, and likely to complicate rather than to clarify classification. It is otherwise, of course, in cases like the present, where a composite group must be divided in order that its parts may be more naturally distributed in relation to allied families.

B. L. R.

Contact Irritability in Hook Climbers.[1] — In this article Dr. Ewart gives an exhaustive account of the phenomena of contact irritability presented by certain tropical hook climbers which he investigated at Buitenzorg. Treub was the first to call attention to the fact that the hooks of certain climbing plants thickened and became stronger when fixed to some support. His work having been mainly morphological, Dr. Ewart has taken up the physiological aspect of the question.

This involved the consideration of the effect of variation in the intensity of the stimulus applied; of the transmission and ultimate effect of such stimuli on the growth of the parts concerned. The stimulus afforded the plant under its natural condition, that brought about by the usual artificial mechanical devices, and, in addition, the stimulation caused by injury, all received attention. The reaction is observable in the inequilateral increase of growth of the hooks, and the results are tabulated in measurements of various parts of these organs.

---

[1] Ewart, A. J. Contact Irritability. *Ann. du Jard., Bot., de Buitenzorg*, vol. xv, i, pp. 187–242.

Dr. Ewart finds that in a purely physiological sense a series of connecting forms exists between the simpler forms of climbing hooks as seen in *Uncaria* and the highly specialized tendrils of the *Passiflora* type. The simplest type of all is represented by the hooks in *Cæsalpinia*, *Rubus fruticosa*, etc., where their use in climbing is purely accidental, in consequence of which fact they do not thicken on contact. Next in the series comes *Luvunga*, possessing non-irritable spines and irritable climbing hooks, followed by the type represented by *Uncaria* and *Artrabotrys*, where only the irritable clasping hooks are found. In his work only the last two were experimented with. Next in order come forms like *Roncheria* and *Ancistrocladus*, where, besides the thickening, the sensitive region shows a slightly increased curvature produced by contact alone. Finally, in forms represented by the root tendrils of *Vanilla*, tendrils of *Cucurbita*, *Passiflora*, *Sicyos*, etc., is presented the phenomenon of rapid and, at first, transient curvature by contact alone. In such cases it is the alteration in the turgidity of the parts that effects the change.

Dr. Ewart goes on to say that no hard and fast line can be drawn between a mere contact and a pressure stimulus. Irritable hooks are adapted to respond to pressure more readily than do tendrils, the latter being affected to a greater degree by contact. In certain cases at least, pressure and traction stimulate cambial activity corresponding to the mechanical requirements of such cases. Contact stimuli appear to affect only the outer layer of cells directly, the curvature resulting being due to the transmission of an impulse. The weak stimulus afforded by injury to the parts concerned is probably to be explained by the normal increase of activity, a kind of tissue pyrexia, which is known to follow wounding.

In cases where the curvature is slowly produced, as in Strychnos, the change cannot be due to any alteration of turgidity but to an heterauxesis in the cambial growth.

Irritable hooks and tendrils, regarded in analogy with other irritable organs, are parts which respond as a whole when any portion of them is stimulated, the result varying, of course, with the point of application and the nature of the exciting stimulus. In conclusion, the author says that the irritation caused by contact stimulus, in the strict sense, is limited almost wholly to the concave surfaces of the hooks. When the pressure is increased to bring about an internal mechanical strain, a response is eventually to be noticed, but not so quickly nor to such an extent as under normal conditions of contact.

The plants experimented with chiefly were: *Uncaria sclerophylla*, *Ancistrocladus Vahlii*, *Roncheria Griffithiana*, *Artrabotrys Blumei*, *Strychnos monospermum*, *S. laurina*, *Amphilobium mutsii*, *Bauhinia tomentosa*, *Dalbergia linga*, and *Vanilla aromatica*.

H. M. R.

Apogamy in Ferns.[1] — A considerable series of cultures under varying conditions show that some, at least, of the conditions which induce apogamic development in fern prothalli are a deprivation of water sufficient to prevent the possibility of fertilization and the action of direct sunlight. Different degrees of apogamy are possible, from a cylindrical process still bearing sexual organs arising from the apex of the prothallus, to the condition where this process gives rise directly to the vegetative bud of the sporophyte.

While the authors admit that, with certain assumptions, the theory of antithetic alternation, as advanced by Bower, affords a satisfactory explanation of the relation of the gametophyte to the sporophyte generation, they are inclined to favor more the idea of homologous alternation, namely, that the sporophyte arose gradually from modifications of individuals resembling the sexual plant, and is not from a mere elaboration of the zygote. The line of evidence offered bears on the assuming of a terrestrial habitat by originally aquatic plants, whereby these plants, in adapting themselves to dryer surroundings, are forced to develop in the line of the production of dry reproductive cells (spores) rather than the more sensitive sexual organs. Hence the increase in size and importance of the spore-bearing plant, which eventually, by its own mass of vegetation, would afford shade, and consequently the conditions more suitable for the persistence of the primitive moisture-loving sexual stage.

The authors conclude by saying that the question is still an open one and must remain so until more decisive evidence is brought forward by which either the theory of homologous alternation or that of antithetic alternation can be shown to be untenable.

H. M. R.

A New Method for Preserving and Fixing Fresh-water Algæ.[2] — This fixing agent consists of equal volumes of formalin, pyrolignic acid, and methyl alcohol. The algæ are drained as far as is possible, without injury to them, from the water in which they grow, and

---

[1] Lang, W. H., and Clark, G. H. On Apogamy and the Development of Sporangia upon Fern Prothalli, *Bot. Centralblatt*, Bd. lxxiv, Nr. 3, p. 72.

[2] Pfeiffer, Oesterreicher. *Bot. Zeit.*, Bd. xlviii, Hefte 2 und 3, 1898.